NASA, European Space Agency team delivers first integrated payload trainer to JSC

The Minus Eighty Laboratory Freezer for the International Space Station (MELFI) trainer was delivered to the Payload Training Complex in Bldg. 5's Space Station Training Facility on July 7. This trainer will be used to train ISS Increment 4 and UF-1 crews currently scheduled to launch in October 2001.

The first major piece of station hardware developed for NASA by the European Space Agency and its industrial contractor, Astrium, MELFI is a –80 degree Celsius rack-based freezer system that will be used for the cooling and preservation of scientific materials aboard the ISS at +4 degrees C as well as at –26 degrees C and at -80 degrees C. It will be transported to and from the station aboard the Italian-built Multi-Purpose Logistics Modules that will be carried to orbit in the space shuttle's cargo bay.

Rick Nygren, manager of the ISS Payloads Office, thanked the ESA/Astrium team at an acceptance review and award ceremony at the Astrium facility in Toulouse, France, on June 22. "The MELFI trainer represents the first major milestone in a cooperative effort between NASA and ESA in achieving a flight-like crew training capability on the ground to train both shuttle and station astronauts and cosmonauts for long-duration research aboard the International Space Station. The MELFI trainer is significant because it is the first integrated payload trainer and it is of superior fidelity."

Crew training on the MELFI trainer will include normal operating procedures for sample insertion and removal, routine maintenance items, Orbital Replacement Units and off-nominal troubleshooting procedures. The crew will be able to command the MELFI trainer from either the front panel or from a Portable Computer System and respond to unplanned failures originating from an instructor station in the Bldg. 5 training complex. This trainer will also have the ability to train ground crews at Marshall Space Flight Center's Payload Operations and Integration Center or JSC's Telescience Support Center by providing access to MELFI's telemetry and providing ground command and control.

ESA is expected to provide all the basic ISS crew and science refrigeration capabilities including the MELFI, the crew refrigerator/freezers, and the cryogenic freezer system as part of barter agreements between ESA and NASA. ■

Gary Cartee, a crew trainer from Marshall Space Flight Center, and Astronaut Laurel Clark evaluate the MELFI trainer in preparation for Increment 4 payload crew training.

NASA JSC Photo 2000-05158 by Bill Stafford

United States, Brazil working together to expand space exploration

Outreach event highlights Brazil's role in space station

At the beginning of July, astronaut Marcos Pontes and avionics instructor Regina North were invited by the Brazilian Space Agency (AEB) and the National Institute for Space Research (INPE) to go to Brazil and support various activities to promote understanding of the International Space Station among Brazilian scientists and the general public.

Pontes, a test pilot and a Brazilian Air Force major, graduated with distinction from the Instituto Technologico de Aeronautica and received the Space and Aeronautics Institute Award and the EMBRAER (Empresa Brasileira de Aeronautica) Award in 1994 for test pilot training. In August 1998, he graduated with distinction from the Naval Postgraduate School in California and reported to the Johnson Space Center to begin astronaut candidate training.

North, a behavioral scientist with United Space Alliance in the Space Flight Training Division in the Mission Operations Directorate, has studied in Brazil, France, and the United States. She has been a member of the ISS instructors' team for the last five years. She started her career as an instructor in ISS payload training in the MOD and was later transferred to the International Training Integration Office. Currently, she is a member of the ISS Avionics Training Team.

An American born in Brazil, North is very familiar with the ISS Program, its partners and participants. She speaks five languages fluently and is currently learning Russian. She is also the cross-cultural communication instructor for United Space Alliance's Space Academy.

In Brazil, astronaut and instructor were a winning team, delivering support to AEB and INPE, lecturing in Portuguese, and explaining the ISS and the human space exploration program to several thousand people in fewer than 10 days.

Their presentations began at INPE's School of Space in São José dos Campos. INPE is the organization tasked by AEB to manage the ISS contract between NASA and AEB and is responsible for developing equipment to be provided to NASA for assembly of the ISS.

Regina França of the Brazilian Space Agency, NASA Astronaut Marcos Pontes, and Regina North of United Space Alliance at the National Institute for Space Research in São Paulo, Brazil.

Currently in its second year of operation, INPE's School of Space provides high school students from around the country an intensive overview of national and international space activities. The weeklong program, the first of its kind in South America, consists of lectures and seminars by scientists, engineers and policymakers working on the space program today. Students are selected according to their grades and their interest in pursuing studies in space engineering, science, and research. Students learn about building satellites and launchers, testing and integration, tracking and telemetry, remote sensing, meteorology, astronomy, the Brazilian space program, and the ISS.

Following their presentations at the School of Space, Pontes and North left São Paulo to participate in a prestigious National Scientific Congress sponsored by the Brazilian Society for the Progress of Science (SBPC) and hosted by the University of Brasilia in Brazil's capital city. The theme of this year's Congress was the 500th anniversary of Brazil and the new challenges, options, and alternatives for the development of Brazil in the next century.

Regina North explains the uses of flight equipment displayed in the Brazilian Space Agency/ National Institute for Space Research booth at the University of Brasilia during the National Scientific Congress sponsored by the Brazilian Society for the Progress of Science.

As part of this program to focus on the increased participation of Brazil in the space arena, Pontes, North, and Eduardo Dornelles from AEB presented a four-day course titled "Brazil and Space Exploration." Dornelles presented the history of the Brazilian space program, the international agreements, and the Brazilian participation in the space station. North presented an overview of the ISS and its components, and Pontes presented the everyday life of an astronaut and how to become an astronaut.

To complement this course, AEB and INPE installed an elaborate booth in the SBPC conference pavilion. At the AEB/ INPE booth, elegantly mounted on blue, yellow, and green (primary colors of the Brazilian flag) carpeting, were displayed panels depicting the history of the Brazilian space program and models of Brazilian-built satellites, rockets, and the ISS. As a team, Regina França from AEB, North and Pontes demonstrated the use of NASA/Public Affairs Office-provided flight equipment (launch/reentry helmet, glove used for extravehicular activity, space food, and intravehicular activity uniform) and answered questions from thousands of visitors.

Dr. Luis Gylvan, president of AEB; Dr. Raimundo Mussi, AEB director for ISS Development; and other AEB/INPE Brazilian authorities visited, worked at the booth and attended the course. AEB and INPE were very thankful for JSC's support of the event.

This joint effort was a clear example of the ISS Program exercising its major goal of bringing nations together to promote international cooperation and expanding the understanding of space exploration around the world. "It was a great success," says North. "It showed an International Space Station that is growing, healthy and strong; demonstrated a solid international cooperation for space exploration; and confirmed NASA's commitment to maintaining its leadership with the support and involvement of Brazil, the only country in the Southern Hemisphere to participate in the ISS venture." ■